Change in Status of *Pinus cembroides* Subsp. *orizabensis* (Pinaceae) from Central Mexico

D. K. Bailey
University of Colorado Museum, Boulder, Colorado 80302, U.S.A.

Frank G. Hawksworth
USDA Forest Service, Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colorado 80526, U.S.A.

ABSTRACT. The Orizaba pinyon (*Pinus cembroides* subsp. *orizabensis*) is raised to specific status. *Pinus orizabensis* differs from *P. cembroides* in many characters, including needle and bark morphology and terpene chemistry.

Orizaba pinyon, *Pinus cembroides* Zucc. subsp. *orizabensis* D. K. Bailey, is a local taxon of east central Mexico described by Bailey (1983). The taxon is here raised to specific rank because of marked differences in needle and bark morphology and terpene chemistry between it and *P. cembroides*.

Pinus orizabensis (D. K. Bailey) D. K. Bailey & Hawksworth, comb. et stat. nov. Basionym: *Pinus cembroides* Zucc. subsp. *orizabensis* D. K. Bailey, Phytologia 54: 89. 1983. TYPE: Mexico. Puebla: Mpio. Soltepec, ca. 10 km SW of San Salvador el Seco on Highway 140, 19°04′N, 97°42′W, 2,370 m, 1983, *D. K. Bailey 83-01* (holotype, MEXU; isotypes, ARIZ, CHAPA, COLO, E, ENCB, INIF, K, MO, NY, RM, TEX, UC, US, UTC).

Pinus cembroides, as interpreted by Bailey (1983) and Bailey & Hawksworth (1988), was considered to be comprised of three allopatric subspecies:

1. Subspecies *cembroides*, the most widespread taxon, ranging from northern Chihuahua and west Texas throughout the Sierra Madre Occidental and Sierra Madre Oriental to central Mexico (Hidalgo and northern Veracruz).

2. Subspecies *lagunae* (Robert-Passini) D. K. Bailey, a local endemic restricted to the Sierra Laguna in southern Baja California.

3. Subspecies *orizabensis* D. K. Bailey, a local endemic in Puebla, Tlaxcala, and Veracruz.

Since that time there has been a trend to accept subspecies *lagunae* as a distinct species, *Pinus lagunae* M.-F. Passini (1987), e.g., in the recent compendium of the pines of Mexico and Central America (Perry, 1991). However, because the differences between subspecies *cembroides* and *orizabensis* are greater than those between subspecies *cembroides* and *lagunae*, we suggest raising subspecies *orizabensis* to species rank as well.

Pinus orizabensis and *P. cembroides* are not sympatric, and the gap between them is about 140 km (Bailey, 1983). The two pines differ in several morphological, chemical, and ecological features (Bailey, 1983), some of which are listed in Table 1.

Acknowledgment. We thank Teobaldo Eguiluz Piedra, Director, Centro de Genética Forestal, Chapingo, Mexico, for encouraging us to make this new combination.

TABLE 1. Comparisons of some characters of *Pinus orizabensis* and *P. cembroides*.

Character	*P. orizabensis*	*P. cembroides*
Needle number per fascicle	Range 2–5; ca. 75–95% in 3's, 5–20% in 4's	Range 2–4; ca. 60% in 2's and 40% in 3's
Needle color	Dorsal surface bluish-green; ventral surface markedly glaucous	Dorsal surface yellow-green; ventral surface slightly glaucous
Bark of mature trees	Thin, little transverse fissuring, inner bark conspicuous, orange	Thick, strong transverse fissuring, inner bark inconspicuous, yellow
Monoterpenes	3-carene usually less than 1%	3-carene usually ca. 10%
Main elevational range	2,300–2,700 m	1,700–2,400 m

Literature Cited

Bailey, D. K. 1983. A new allopatric segregate from and a new combination in *Pinus cembroides* Zucc. at its southern limits. Phytologia 54: 89–100.

——— & F. G. Hawksworth. 1988. Phytogeography and taxonomy of the pinyon pines, *Pinus* subsection *Cembroides*. Pp. 41–64 *in* II Simposio Nacional sobre Pinos Pinoneros, Centre d'Etudes Mexicaines et Centroaméricaines, Mexico City, Mexico.

Passini, M.-F. 1987. The endemic pinyon of Lower California. *Pinus lagunae* M.-F. Passini. Phytologia 63: 337–338.

Perry, J. 1991. The Pines of Mexico and Central America. Timber Press, Portland, Oregon.